Report Documentation Page

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US Army Corps of Engineers®
Engineer Research and Development Center

Coastal Inlets Research Program

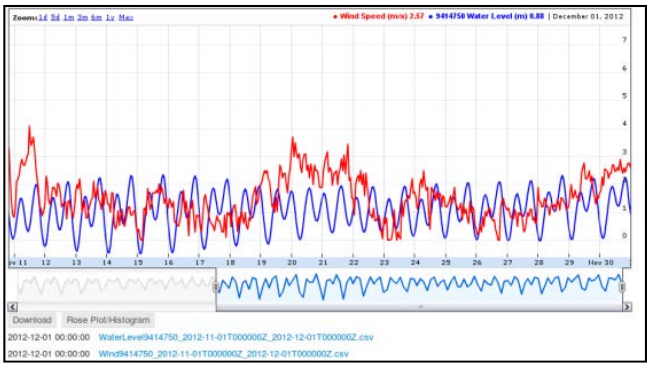
TideNet

Description

TideNet is a web-based Graphical User Interface (GUI) that provides users with Geographical Information System (GIS) mapping tools to query sources of tide data in a desired geographic region of the U.S. and its territories. Users can select a tide data source through a Google Map® interface to view data and parameters of interest. TideNet can plot, analyze and extract tidal information in different formats based on a user-specified time window in a useful format for an engineering application. TideNet has additional post-processing capabilities to produce tables and figures, and prepare input files for numerical models used in USACE projects.

TideNet home page

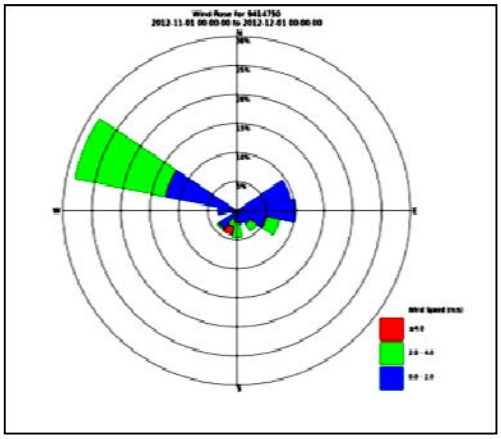
TideNet can fetch tide data, including plots and tables from the source, or process tide data downloaded from any source site to perform additional analyses. The home page of the TideNet map in the above image shows four data sources, which are Advanced Circulation Model Calculations (ADCIRC), Le Provost, National Weather Service (NWS), and TOPEX/Poseidon Global Inverse Solution (TPXO) databases. The NWS database has been implemented in TideNet, and others will be completed in FY15. Users can zoom into the region of interest where water level and wind data are desired. The display and plotting options include text (ASCII) files of tide record time series, histograms of data, and image files (.png) or portable documents (.pdf) of the plotted data. The numerical model support in TideNet allows users to select a model (e.g., CMS-Wave, CMS-Flow, etc.) to prepare water level data for input to numerical simulations.



Time series of water levels and wind

Issue Addressed

This web-based tool addresses a basic shared need of the Corps for coastal modeling and planning by acquiring oceanographic data and by minimizing the complexity in processing data. TideNet provides water levels and current data required for coastal, ocean, and marine engineering applications, facilitates conversion of data used in input files of numerical wave models by the Corps of Engineers, and generates tabular and graphical information for project planning and design reports.



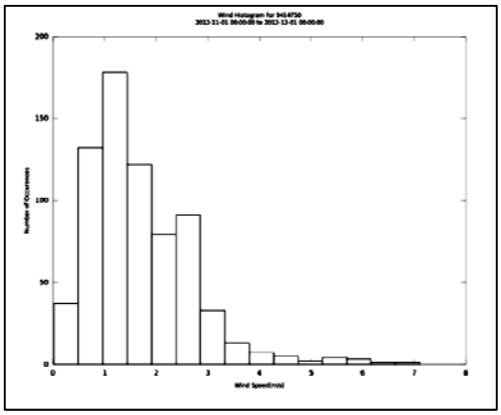
Wind rose

Products

The TideNet tool is a web-based GUI that provides users with a GIS mapping tool to query and select data sources for any desired geographic region in USA and its territories. It uses a Google Map® interface to display data from tidal data sources.

Application of Products

Recent project applications for WaveNet include: Ambrose Entrance Channel, NY; Braddock Bay, NY; Tangier Island, VA; Sand Island, WI; Hilo Harbor, HI; Kikiaola harbor, HI; Dana Point Harbor, CA; Tillamook Bay, OR; Grays Harbor, WA; Sand Island, WI; Duluth Harbor, MN; Cape Canaveral, FL.



Wind histogram

Projected Benefits

This web-based data management tool supports the Corps' coastal navigation and flood risk management missions, which require tide, water level, and wind data. TideNet facilitates access, process and analysis of tide and wind data from different databases, and provides users a combination of analysis and graphical tools to minimize complexity and uncertainty of data analyses for Corps project applications. TideNet provides reliable and accurate data necessary to improve engineering design, operation and maintenance of navigation projects, rehabilitation data for inlets, jetties, breakwaters, and tidal data required for evaluation of impacts of engineering activities on safety of coastal navigation (e.g., channel deepening, and jetty modifications) and for port access and utilization and coastal shoreline erosion studies.

Documentation

A technical note describes the general features of TideNet GUI, its operation, characteristics of different data sources, and analysis capabilities available in TideNet. Additional publications scheduled in FY15 will address processing of different databases available in TideNet. The technical notes are available from the CIRP website.

Points of Contact

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CIRP Website

- Please see the CIRP website to download documentation: http://www.erdc.usace.army.mil/Missions/WaterResources/CIRP/Publications.aspx
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